



Hīhīwai (*Neritina granosa*)

Description:

Hīhīwai are freshwater snails endemic to Hawaii, meaning they occur nowhere else in the world. They can grow to 1.5 inches in diameter, and have a very distinct coloration pattern with red dots on the top of the shell and an orange operculum on the bottom. The operculum is a structure attached to the upper surface of the snail's fleshy foot. It acts like a trap door covering the soft parts of the snail when they are retracted inside the shell.

Habitat & Diet:

Hīhīwai prefer very clean, well-oxygenated streams with rocky bottoms. Rocks are easy to grip and provide good mediums for the algae they scrape off to feed on. They are most abundant in fast-flowing, lower to middle stream reaches, but can be found in upper reaches as well. Their strong, muscular foot allows them to climb waterfalls and attach themselves firmly to rocks.

The nocturnal hīhīwai seen during the day represent only a small portion of the population that may be hiding under the rocks waiting for night.

Reproduction:

Hīhīwai deposit eggs in tiny whitish-brown capsules about the size and shape of a sesame seed. They will attach hundreds of egg capsules to rocks or even each other's shells. Each capsule contains about 250 eggs. When the eggs hatch, larvae are washed out to the ocean where they will spend up to a year before returning to a stream. The post-larvae, called spat, can be seen marching single file up the stream in large recruitment events usually during the summer months (see photo at right). The new recruits will migrate upstream until they find a suitable location to spend their adult life. This type of lifecycle is called an amphidromous lifecycle. Despite all of the travelling, most hīhīwai do not move more than 30 meters away from

their initially established home location once they reach adulthood.

Tidbit:

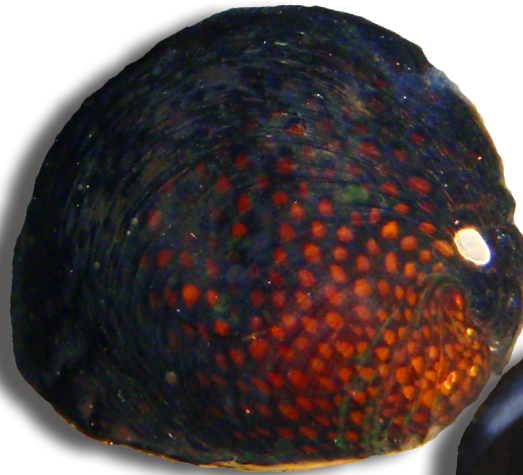
The hīhīwai is also called wī, which means *famine* in Hawaiian. This suggests they were an important food source for native Hawaiians during times of food shortage. They are also a favorite food of some native birds such as the 'auku'u (black-crowned night heron), and the 'ūlili (wandering tattler).

Threats:

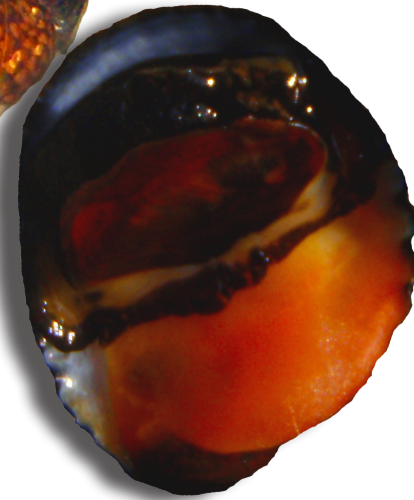
The amphidromous lifecycle of the hīhīwai illustrates the strong mauka to makai (mountain to ocean) connection necessary for their survival. Hīhīwai need an uninterrupted connection between the stream and the ocean. Water diversions and dams can impede this connection. Also, habitat alteration such as the construction of concrete stream channels instead of natural rocky habitat can impact their feeding behavior. Finally, habitat degradation and pollution can lead to poor water quality, which hīhīwai cannot handle.

Hīhīwai in National Parks:

Hīhīwai are found in high quality streams on Kaua'i, Maui, Moloka'i, and Hawai'i Island. They are rarely observed on the island of O'ahu due to the high level of stream alteration and degradation of streams on the island. The National Park Service Inventory & Monitoring Program monitors these snails in the streams of Haleakalā National Park and Kalaupapa National Historical Park.

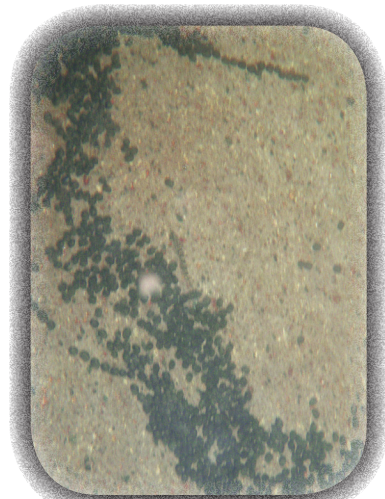


The top of their shell is black. Underwater, the hīhīwai appear beautifully speckled by reddish colored dots. The underside of the shell as well as the operculum is an orange-brown color (below).



For more information on hīhīwai:
http://hawaii.gov/dlnr/dar/streams_native_animals.html

—A. Farahi, NPS
Biotechnician



These young hīhīwai spat were photographed during their upstream migration from the ocean to find areas to pass their adult lives.

A photograph isn't good enough? How about some video of a hīhīwai migration ?

<http://www.youtube.com/watch?v=1ssBfBqSAJI>